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EXAMINER

LAVIN, CHRISTOPHER L

ART UNIT PAPER NUMBER

2621

DATE MAILED: 12/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/683,130

Applicant(s)

TREVINO ET AL.

Examiner

Christopher L Lavin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1 - 31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 – 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Wu (6,687,527).

3. In regards to claim 1, Wu discloses a method of guiding prescription of a medical image scan. The primary layout of this method can be seen in Figure 3. Steps 68 and 502 “launch” an image application. As shown in step 504 and further explained in the paragraph starting at column 13, line 58 Wu discloses that “the user can select the desired scan parameter set”. This is the step of determining a plurality of scan parameters. In lines 1 – 3 in column 15, Wu discloses receiving a scan parameter input. Then in the same paragraph Wu discloses in lines 3 – 9 the step of comparing the scan parameter input to a reference value. Upon verifying the parameter is within range (step 524) the method returns to step 508 and recalculates the minimum and maximum parameter limits, this is further explained in the paragraph starting at column 15, line 23. In the paragraph starting at column 10, line 41 Wu discloses that monitor parameters are calculated when a scan parameter is inputted. Then in lines 19 – 26 in column 11

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Wu discloses that the calculated parameters are then used to alert the user that "a monitor parameter is in an undesirable area". Wu's monitor parameters are scan parameters. The previously recited actions dealing with monitor parameters consists of determining the state of validity of parameters and notifying the user if any parameter is out of a predefined range.

4. In regards to claim 2, Wu discloses the step of optimizing the scan parameters in lines 60 – 63 in column 15. In the paragraph starting at column 16, line 20 Wu discloses that SNR is optimized. The user is then given the option to accept the calculated optimized results as seen in lines 49 – 52 in column 19. This is equivalent to determining and suggesting at least one technique for achieving increased SNR.

5. In regards to claim 3, Wu discloses in the paragraph starting at column 15, line 1 that the user is alerted or prevented from setting a scan parameter to an invalid state. If the method in no way prevents the user's setting or does not alert the user to a problem, the system is conveying to the user that the input is acceptable.

6. In regards to claim 4, as discussed in the rejection of claim 1 upon updating a scan parameter the system automatically updates the monitor parameters (paragraph starting at column 10, line 41).

7. In regards to claim 5, in lines 19 – 26 in column 11 the automatic changes from claim 4 can be seen by the user on a secondary display. This updated display conveys to the user that the remaining number of scan parameters has been automatically updated.

8. In regards to claim 6, in the paragraph starting at column 11, line 53 Wu discloses "the embodiment of the second display area 200 shown in Fig. 2B includes indicators to warn the user when certain parameter values enter particularly undesirable regions."

9. In regards to claim 7, as shown in claim 6 the user is notified of the at least one remaining invalid scan parameter. In the paragraph starting at column 12, line 6 warning labels are used to notify the user of remaining invalid scan parameters.

10. In regards to claim 8, the warning disclosed in claim 7 is a form of prompting for the user to enter a different scan parameter input.

11. In regards to claim 9, Wu discloses a method of prescribing imaging data acquisition of a subject. The primary layout of this method can be seen in Figure 3. Wu discloses step A in the paragraph starting at column 14, line 20 and seen in step 504 of Figure 3 the first user interaction to initiate a scan session. The user selects a template that corresponds to what type of scan shall be performed; this selection determines which parameters are most important (highest priority) and which are less important. As shown in the paragraph starting at column 15, line 42 after receiving the user's selection a plurality of scan parameters is determined. As mentioned previously depending on what type of scan the user selects a hierarchy prioritizing the plurality of scan parameters is specified. These steps can then be repeated for subsequent scan sessions. Each new template selected will bring with it a new priority for the scan parameters.

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12. In regards to claim 10, Wu discloses in the paragraph starting at column 19, line 6 “fixed parameters” which “typically include the field of view, the phase of FOV, slice thickness, number of slices, the read matrix, the flip angle, and the signal averages” are determined. These are primary scan parameters that cannot be affected by changes in any other parameters. Changes in the primary scan parameters can affect secondary, which in turn affects the tertiary. In the paragraph starting at column 9, line 42 Wu discloses that “selectable parameters” are determined. The “selectable parameters” are secondary scan parameters. In the paragraph starting at column 10, line 41 Wu discloses that the “monitor parameters” are determined. The “monitor parameters” are the tertiary scan parameters.

13. In regards to claim 11, Wu discloses in the paragraph starting at column 15, line 23 that “changing one [secondary scan] parameter value can effectively constrain other [secondary scan] parameter values.” In the paragraph starting at column 10, line 41 Wu discloses that changing a secondary scan parameter affects the tertiary scan parameters. The secondary scan parameters however, have no affect on the primary scan parameters.

14. In regards to claim 12, as disclosed above the tertiary scan parameters are affected by changes in either the primary or secondary scan parameters. The user cannot directly change the tertiary scan parameters so these parameters cannot affect the primary or secondary scan parameters.

15. In regards to claim 13, the parameters disclosed above can be used to drive user understanding of the physics of the scan session from geometry to timing. There is however nothing patentable in this claim.

16. In regards to claim 14, all of these parameters are displayed graphically to the user. For example the paragraph starting at column 14, line 59 discloses a graphical user interface (GUI). A GUI is necessary and therefore inherent for a user to be able to access and use the parameters disclosed above.

17. In regards to claim 15, Wu discloses in the paragraph starting in column 15, line 1 an "input step" for modifying a parameter through the GUI.

18. In regards to claim 16, Wu discloses that the consequence of changing a secondary scan parameter is seen in the second display through the tertiary parameters as disclosed in the paragraph starting at column 10, line 41.

19. In regards to claim 17, in the paragraph starting at column 11, line 53 Wu discloses "the embodiment of the second display area 200 shown in Fig. 2B includes indicators to warn the user when certain parameter values enter particularly undesirable regions." This is a way of notifying a user that modification of a scan parameter causes another scan parameter to be invalid.

20. In regards to claim 18, the warning disclosed in claim 17 is a form of prompting for the user to enter a different scan parameter input.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

23. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

24. Claims 19 – 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu.

25. In regard to claims 19 – 21, the methods disclosed previously by Wu must be implemented in software. The paragraph starting at column 14, line 59 discloses a graphical user interface (GUI). Figure 2A is an example of the GUI the user is presented

with that allows for the modification of several scan parameters. In figure 3, step 520 the computer program receives a command to modify a scan parameter. In step 526 the scan parameter is modified. In step 508 at least one effect of modifying the scan parameter on another scan parameter is determined. If a modifiable scan parameter is outside of a newly calculated minimum and maximum (step 508) the system must in some way deal with this. There are only two obvious approaches given Wu's specification, either by following the suggestion in lines 14 – 22 in column 15 where the invalid scan parameter is moved to an extreme limit value and a warning is given to the user or the new max and min are displayed as shown in figure 2A with the invalid scan parameter sitting outside of this range. Either approach is a way of notifying a user of the effect. Both approaches determine if a change needs to be made to another scan parameter, what that change should be (either by providing a range or setting the another parameter to an extreme limit), and if the value is valid (must be within the min and the max).

26. In regards to claim 22, as disclosed in the previous rejection of claim 21 the program disclosed by Wu provides two approaches for dealing with an invalid another scan parameter. One of which is automatically changing the another scan parameter to a valid value.

27. In regards to claim 23, as disclosed in the previous rejection of claim 20 the program disclosed by Wu provides two approaches to dealing with an invalid another scan parameter. One of which is to redraw the max and min sliders while leaving the

another scan parameter outside of the two sliders. This approach is a way of displaying that the another scan parameter has an invalid value on the GUI.

28. In regards to claim 24, as disclosed in the previous rejection of claim 20 the program disclosed by Wu provides two approaches to dealing with an invalid another scan parameter. One of which is to redraw the max and min sliders while leaving the another scan parameter outside of the two sliders. This approach is a way of promoting the user to modify the another scan parameter.

29. Claims 25 – 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu in view of Seybold (5,877,758).

30. In regards to claims 25 – 27, in figure 1 Wu discloses a medical imaging system configured to initiate an imaging application and acquire imaging data of a subject and reconstruct a diagnostic image of the subject. Item 10 in figure 1 is a console configured to facilitate prescribing of a medical imaging scan. Item 50 in figure 1 is a computer which can implement the required applications. In the paragraph starting at column 15, line 59 Wu discloses a GUI for modifying scan parameters. In the paragraph starting at column 7, line 20 Wu discloses that the GUI detects user modification of at least one of a plurality of options. In figure 3, step 520 the computer program receives a command to modify a scan parameter. In step 526 the scan parameter is modified. In step 508 at least one effect of modifying the scan parameter on another scan parameter is determined. If a modifiable scan parameter is outside of a newly calculated minimum and maximum (step 508) the system must in some way deal with this. There are only two obvious approaches given Wu's specification, either by following the suggestion in

lines 14 – 22 in column 15 where the invalid scan parameter is moved to an extreme limit value and a warning is given to the user or the new max and min are displayed as shown in figure 2A with the invalid scan parameter sitting outside of this range. Either approach is a way of notifying a user of the effect. Both approaches determine if a change needs to be made to another scan parameter, what that change should be (either by providing a range or setting the another parameter to an extreme limit), and if the value is valid (must be within the min and the max). Wu does not disclose the use of tabs in the GUI.

31. Seybold teaches in the paragraph starting at column 7, line 59 and shown in figure 2A that a plurality of tabs can be used for navigation in a GUI. The tabs can be used in a similar fashion as the buttons disclosed by Wu in Figure 2A, each specifying a specific task. For the GUI to be effective the system must detect the user selection of a tab. Finally for the tabs to be used for navigation, when selected they must bring up windows which contain user controlled options.

32. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to use tabs as a means of navigation in the GUI taught by Wu. Tabs are an easy and fairly self-explanatory way to provide user navigation of options in a GUI. As many medical professionals are not computer literate making a GUI that is easy to understand is a necessity.

33. In regards to claim 28, as disclosed in the previous rejection of claim 26 the system disclosed by Wu provides two approaches to dealing with an invalid another scan parameter. One of which is automatically changing the another scan parameter to

a valid value. Unless there is no possible valid value, which Wu does not disclose this approach will never result in a value still being invalid. The other approach is to redraw the max and min sliders while leaving the another scan parameter outside of the two sliders. This approach is a way of displaying that the another scan parameter has an invalid value on the GUI.

34. In regards to claim 29, as disclosed in the previous rejection of claim 27 the program disclosed by Wu provides two approaches to dealing with an invalid another scan parameter. One of which is to redraw the max and min sliders while leaving the another scan parameter outside of the two sliders. This approach is a way of promoting the user to enter a new value for the another scan parameter.

35. In regards to claim 30, Seybold discloses in the paragraph starting at column 7, line 59 that "Tabs 124 are positioned vertically along the left hand side of the screen". This can be seen in figure 2A. With the tabs on the left side the content window must be displayed on the right side as seen in figure 2A.

36. In regards to claim 31, the purpose of all GUIs is to facilitate logical top-bottom and left-right workflow. The written English language is designed top-bottom and left-right, this is the reason why GUIs are also designed in a similar fashion to facilitate ease of use.

Conclusion

37. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

38. US Pat. 4,835,690 discloses a method and apparatus for user control of a medical imaging system. In the paragraph starting at column 4, line 25 Gangarosa discloses that scan parameter changes affect other parameters. In the paragraph starting at column 4, line 48 Gangarosa discloses that a user can manually entire scan parameters. In the paragraph starting at column 5, line 35 Gangarosa discloses that a hierarchy of scan parameters is used to optimize the system. Finally in the paragraph starting at column 6, line 11 Gangarosa discloses that an error message is displayed if the parameters can not be optimized.

39. US Pat. 6,430,428 discloses a method and apparatus for user control of a medical imaging system. In the paragraph starting at column 2, line 5 Lindstedt discloses that a user can manually input scan parameters. In the paragraph starting at column 3, line 40 Lindstedt discloses that changing one scan parameter can affect other scan parameter. In the same paragraph Lindstedt discloses that that the user is not permitted to input invalid scan parameters.

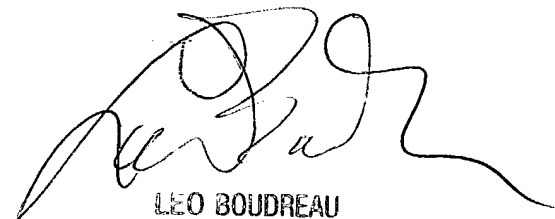
40. US Pat. 5,758,646 discloses a method and apparatus for user control of a medical imaging system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher L Lavin whose telephone number is 703-306-4220. The examiner can normally be reached on M - F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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